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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,575	06/28/2000	Anu K. Pathria	ISAA0046	6029

7590 07/18/2005

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EXAMINER
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LASTRA, DANIEL

ART UNIT	PAPER NUMBER
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3622

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/606,575

Applicant(s)

PATHRIA ET AL.

Examiner

DANIEL LASTRA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Claims 1-46 have been examined. Application 09/606,575 (CASCADED PROFILES FOR MULTIPLE INTERACTING ENTITIES) has a filing date 06/28/2000 and Claims Priority from Provisional Application 60/146,209 (07/28/1999).

***Response to Amendment***

2. In response to Final Rejection filed 12/23/2004, the Applicant filed an RCE on 04/25/2005. No claims were amended or added.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Prezioso (U.S. 5,577,169).

As per claim 1, Prezioso teaches:

A computer implemented method of generating an enhanced profile of an individual entity, the profile including for each member of the individual entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

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generating at least one single entity profile (i.e. "physicians"; column 1, lines 55-61) of an individual entity having individual members, from historical transactions of the members of the individual entity (see column 1, lines 55-61);

generating at least one multiple entity profile (i.e. "degree of membership (i.e. the values of the profile variables can be used to characterize the different members belonging to an entity" see Applicant's specification page 4, lines 3-6) that a particular entity (physician) has for the behaviour characteristic of the peer group"; column 14, lines 16-25) of at least one multiple entity defined by a combination comprising individual entities and interacting pairs of entities (i.e. "interaction between physician and patients"; see column 8, lines 53-64); , from historical transactions that include the members of each of the individual entities included in a multiple entity (i.e. "interaction between physician and patient"; see column 8, lines 53-64) and that include interacting pairs of entities (column 8, lines 53-64; "interaction between physician and patient); and

enhancing at least one single entity profile using at least one multiple entity profile to generate the enhanced profile (i.e. "determination of behaviour characteristics from the physician profile"; see column 13, line 40 – column 14, line 35).

As per claim 2, Prezioso teaches,

The method of claim 1, wherein enhancing at least one single entity profile using at least one multiple entity profile further comprises:

merging at least one multiple entity profile with at least one individual entity

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profile that have a common member to produce a merged profile (see column 8, lines 54-64); and

rolling up a merged profile with respect to a selected one of the individual entities to produce the enhanced profile (see column 8, lines 54-65).

As per claim 3, Prezioso teaches:

The method of claim 1, further comprising:

providing at least one of a single entity profile, an enhanced profile, or a multiple entity profile as an input into a predictive model for predicting a transaction pertaining to an entity included in the profile (i.e. "profiling physician behaviour to search for fraud, a behaviour characteristic such as unusually high percentage of office visits on Sunday and Holidays"; column 9, lines 17-37).

As per claim 4, Prezioso teaches:

The method of claim 1, further comprising:

providing at least one of a single entity profile, an enhanced profile, or a multiple entity profile as an input into a profile of a different entity (see column 11, lines 24-37).

As per claim 5, Prezioso teaches:

The method of claim 1, further comprising:

deriving from at least one of a single entity profile, an enhanced profile, or a multiple entity profile statistics which summarize transactions pertaining to an entity included in the profile (see column 8, lines 54-64).

As per claim 6, Prezioso teaches:

The method of claim 1, wherein each profile includes a plurality of variables, and

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generating at least one single entity profile of an individual entity having individual members further comprises: for each member of an entity:

determining a peer group of the member and normalizing at least one profile variable of the entity with respect to the member's distance from other members in the member's peer group (see column 11, lines 24-36).

As per claim 7, Prezioso teaches:

The method of claim 3, wherein a member's peer group is determined by a declared specialty of the member (see column 6, lines 22-32).

As per claim 8, Prezioso teaches:

The method of claim 3, wherein a member's peer group is determined by transactions engaged in by the member (see column 11, lines 24-36).

As per claim 9, Prezioso teaches:

The method of claim 1, wherein the entities are healthcare related entities (see column 6, lines 22-32).

As per claim 10, Prezioso teaches:

The method of claim 1, wherein the entities include a healthcare providers and patients (see column 6, lines 22-32).

As per claim 11, Prezioso teaches:

The method of claim 1, wherein the entities include a healthcare related facility (see column 6, lines 22-32).

As per claim 12, Prezioso teaches:

The method of claim 1, wherein the entities include healthcare claims processor

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(see column 8, lines 54-65).

As per claim 13, Prezioso teaches:

The method of claim 10, wherein at least one multiple entity is a combination of a provider and a patient (see column 8, lines 54-62).

As per claim 14, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a procedure mix variable that measures a relative amount of activity a provider member has in each of a plurality of procedure categories (see column 8, lines 54-63).

As per claim 15, Prezioso teaches:

The method of claim 14, wherein the amount of activity is relative to each provider member's peers (see column 8, lines 54-63).

As per claim 16, Prezioso teaches:

The method of claim 14, wherein the procedure categories are defined by ICD9 codes (see column 7, lines 29-41).

As per claim 17, Prezioso teaches:

The method of claim 14, wherein the procedure categories are defined by a clustering process on provider or patient historical transactions (see column 8, lines 54-64).

As per claim 18, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes an age group concentration variable that measures activity of a provider member in each of a plurality of patient age groups relative to the provider member's peers (see

column 8, lines 54-64).

As per claim 19, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a single-day activity variable that measures a frequency and magnitude of very-high activity days of a provider member (see column 8, lines 54-64).

As per claim 20, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a monthly activity variable that measures monthly activity of a provider member (see column 8, lines 54-64).

As per claim 21, Prezioso teaches:

The method of claim 20, wherein the monthly activity measure is a distribution of monthly activity of a provider member relative to the provider member's peers (see columns 9, lines 14-34).

As per claim 22, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a quarterly activity variable that measures quarterly activity of a provider member (see column 7, lines 51-59).

As per claim 23, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a group practice participation variable that identifies providers that are part of a group practice (see column 13, lines 7-41).

As per claim 24, Prezioso teaches:



The method of claim 10, wherein an entity profile of a provider entity includes a client consecutive visit variable that measures a frequency with which a same member of a client entity visits a same provider member in a selected period of time (see column 8, lines 54-64).

As per claim 25, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a per-day activity variable that measures a provider member's daily activity level, according to at least one of: number of services per day, total dollars-paid per day, number of clients per day, total dollars-per-client per day or number-of-services-per-client per day (see column 8, lines 54-64).

As per claim 26, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a per-client activity variable that measures a provider member's activity level with respect to individual client entity members over a selected time period (see column 8, lines 54-64).

As per claim 27, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a multiple providers activity variable that measures, for each provider member, the activity of other provider members who provide services to clients of the provider member on a same day that the provider member provides services (see column 9, lines 17-34).

As per claim 28, Prezioso teaches:

The method of claim 10, wherein an entity profile of a provider entity includes a ratio of procedure categories variable that measures for a provider member at least one ratio of one category of service provided by the provider member to another category of service provided by the provider member (see column 9, lines 18-33).

As per claim 29, Prezioso teaches:

The method of claim 10, wherein an entity profile of a client includes a variable that measures an activity level of a non-repeatable service provided to a client member (see column 8, lines 54-64).

As per claim 30, Prezioso teaches:

The method of claim 10, wherein an entity profile of an entity includes a variable that describes transactions of entity members with respect to the order of the transactions over time (see column 8, lines 54-64).

As per claim 31, Prezioso teaches:

A computer implemented method of generating a profile of an entity, the profile including for each member of the entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

a direct profile process that generates a direct profile of an entity having members, from historical transactions of the members of the entity (see column 8, lines 54-65);

multiple applications of the direct profile process with respect to distinct entities, including at least one multiple entity comprising a combination of individual entities

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and interacting pairs of entities to produce respective individual and multiple entity profiles (i.e. interaction between physician and patient; see column 8, lines 54-65);

an enhance process that enhances the profile of a first entity (i.e. physician) using a profile of a second entity (i.e. patient) (see column 8, lines 54-65); and

at least one application of the enhance process to enhance the profile of a multiple entity with the profile of a single entity by combining observations in the multiple entity profile that have a common member in the single entity profile (see columns 11, lines 24-36; i.e. "peer group").

As per claim 32, Prezioso teaches:

A computer implemented method of generating an enhanced profile of a 1<sup>st</sup> entity, the 1<sup>st</sup> entity having a plurality of members, the enhanced profile of the 1<sup>st</sup> entity including for each member of the 1<sup>st</sup> entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

a direct profile process that generates a direct profile of an entity having members, from historical transactions of the members of the entity (see column 8, lines 54-65);

an enhance process that enhances the profile of an entity using a profile of another entity by combining portions of observations of the entities that have a common member (see column 11, lines 24-36; "physicians, patients and peer group");

multiple applications of the direct profile process with respect to the 1<sup>st</sup> , 2<sup>nd</sup> and 3<sup>rd</sup> entities to produce respective 1<sup>st</sup> , 2<sup>nd</sup> , and 3<sup>rd</sup> profiles, wherein the 3<sup>rd</sup>

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entity is a combination of the 1<sup>st</sup> and 2<sup>nd</sup> entities, wherein said 1<sup>st</sup> and 2<sup>nd</sup> entities are an interacting pair of entities (i.e. "interaction between physician and patient"; "interaction between physician and peer group");

an application of the enhance process on the profile of the 3<sup>rd</sup> entity with the profile of the 2<sup>nd</sup> entity to produce an enhanced 3<sup>rd</sup> entity profile (i.e. degree of membership of an entity (e.g. physician) in the behaviour characteristic (e.g. unusually High or Low Avg Patient Age) is determined by the degree of membership to peer group; see column 13, line 63 – column 14, line 2); and

an application of the enhance process on the profile of the 1<sup>st</sup> entity with the enhanced profile of the 3<sup>rd</sup> entity (i.e. degree of membership; see column 13, line 63 – column 14, line 2).

As per claim 33, Prezioso teaches

A computer implemented system of generating an enhanced profile of a 1<sup>st</sup> entity, the 1<sup>st</sup> entity having a plurality of members, the enhanced profile of the 1<sup>st</sup> entity including for each member of the 1<sup>st</sup> entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

direct profile means for generating a direct profile of an entity having members, from historical transactions of the members of the entity (see column 8, lines 54-65);

enhancing means for enhancing the profile of an entity using a profile of another entity by combining portions of observations of the entities that have a common member (see column 11, lines 24-36; "interaction between physician, patients and

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peer group”);

and means for applying the direct profile means and the enhancing means in parallel and serial applications with respect to 1st , 2nd , and 3rd entities to produce respective 1st, 2nd , and 3rd profiles, wherein the 3rd entity is a combination of the 1st and 2nd interacting pair of entities to produce direct profiles of the 1st , 2nd , and 3rd entities, and to enhance the profiles of the 1st entity using profiles of the 2nd and 3rd entities (see column 13, line 63 – column 14, line 2).

As per claim 34, Prezioso teaches:

A computer implemented system of generating a profile of a entity, the 1<sup>st</sup> entity having a plurality of members, the enhanced profile of the 1<sup>st</sup> entity including for each member of the 1<sup>st</sup> entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

generating a 1st profile of a combination of a 1st and 2nd interacting pair of entities, from historical transactions pertaining to both the 1st and 2nd entities, the 1st profile including one observation for each combination of a member of the 1st entity (i.e. physician) interacting with a member of the 2nd entity (i.e. patient; column 13, line 63 – column 14, line 2);

generating a 2nd profile of a combination of the 2nd and a 3rd entity, from historical transactions pertaining to both the 2nd and 3rd entities, the 2nd profile including one observation for each combination of a member of the 2nd entity (i.e. patient) and a member of the 3rd entity (see peer group; column 11, lines 24-36); and

enhancing the 1st profile using the observations of the 2nd profile that have a

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same member of the 1st entity and the 2nd entity, to describe a statistical relationship between the 1st entity and the 3rd entity (see column 11, lines 16-17; i.e. "statistical relationship to physician peer group).

As per claim 35, Prezioso teaches:

A computer implemented method of generating a profile of an entity, comprising:

generating a profile of a 1st entity (see "physician" column 8, lines 53-65);

generating a profile of at least one 2nd entity (i.e. patients) that interacts with the 1st entity through transactions with the 1st entity (see column 13, lines 42-50 "population age);

generating a profile of at least one 3rd entity comprising the combination of the interactive 1st and 2nd entities (i.e. membership of a physician to physician peer group"; column 11, lines 24-36); and

enhancing the profile of the 1st entity with the profile of at least one 3rd entity (i.e. "membership to a peer group; column 11, lines 24-36).

As per claim 36, Prezioso teaches:

A computer implemented method of generating a profile of an entity, comprising:

deriving a 1st profile of a 1st entity using transactions of the 1st entity (i.e. physician, column 8, lines 53-65);

deriving a 2nd profile of a 2nd entity (i.e. patient) that interacts with the 1st entity through transactions with the 1st entity (see column 9, lines 22-36);

merging the 1st and 2nd profiles to create a merged profile representing an entity comprising interacting 1<sup>st</sup> and 2<sup>nd</sup> entities (see column 9, lines 15-32);

deriving a new variable from other variables of the merged profile (see "value of each behaviour characteristic" see column 9, lines 30-34);

rolling up the merged profile with respect to the new variable (see column 10, lines 10-20 "norm").

As per claim 37, Prezioso teaches:

A computer implemented method of generating a profile of an entity, comprising:  
generating a profile of a 1st entity from historical transactions of the 1st entity, said historical transactions comprising said 1<sup>st</sup> entity interacting with at least a 2<sup>nd</sup> entity, the profile containing a plurality of variables (see column 9, lines 17-32);

receiving new transactions of the 1st entity (see column 9, lines 17-32; "physician);

updating at least one variable of the profile of the 1st entity using only the at least one profile variable and the new transactions, without using the historical transactions from which the profile was generated ("new office visit" column 9, lines 15-30).

As per claim 38, Prezioso teaches:

A computer implemented method of updating a profile of an entity, the profile including for each member of the entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

performing with respect to multiple distinct entities (i.e. physician and patient), multiple applications of a direct profile process that generates a direct profile of an

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entity having members, from historical transactions of the members of each of the entities, including at least one multiple entity comprising a combination of individual entities and interacting pairs of entities, to produce respective individual and multiple entity profiles (see "physician, patient and physician peer group" see column 11, lines 25-37);

at least one application of an enhance process to enhance the profile of a multiple entity with the profile of a single entity by combining observations in the multiple entity profile that have a common member in the single entity profile (see peer group; column 11, lines 24-37;

receiving new transactions of the multiple entity (see column 11, lines 22-37);  
and

updating at least one variable of the profile of the multiple entity using only the at least one profile variable and the new transactions, without using the historical transactions from which the profile of the multiple profile was generated (see columns "degree of membership" see column 12, lines 1-4).

As per claim 39, Prezioso teaches:

A computer implemented method of generating a profile of a first entity, the profile including for each member of the first entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

generating a first profile of the entity from historical transactions pertaining to the first entity, the first profile including one observation for each member of the first entity,



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the observation having at least one variable summarizing the historical transactions of the member of the first entity (see column 9, lines 17-35);

generating a second profile of a second entity from historical transactions pertaining to the second entity, the second profile including one observation for each member of the second entity, the observation including at least one variable summarizing the historical transactions of the member of the second entity (see "Usually high or low average patient age" column 13, line 63 – column 14, line 2);

generating a third profile of a third entity comprising a combination of the interacting first and second entities, from historical transactions pertaining to both the first and second entities, the third profile including one observation for each combination of a member of the first entity interacting with a member of the second entity, the observation including at least one variable describing the transactions of the member of the first entity with respect to the member of the second entity (see column 11, lines 24-35);

enhancing the third profile using the second profile by combining at least a portion of observations from the second profile with observations from the third profile that have a same member of the second entity, to produce an enhanced third profile (see "membership to peer group" column 11, lines 24-40);

and enhancing the first profile using the enhanced third profile by combining at least a portion of observations from the third profile with observations from the first profile that have a same member of the first entity, to produce an enhanced first profile (see column 11, lines 24-36).

As per claim 40, Prezioso teaches:

The method of claim 39, wherein enhancing the first profile using the enhanced third profile comprises:

merging the observations from the first profile with observations of the enhanced third profile that have a same member of the first entity (see column 11, lines 24-36); and

for each member of the first entity, rolling up all observations in the first profile for the member into a single observation having at least one variable describing interactions of the member of the first entity with respect to other members of the first entity (see column 9, lines 20-35).

As per claim 41, Prezioso teaches:

The method of claim 39, wherein enhancing the third profile using the first profile by combining observations from the first profile with observations from the third profile that have a same member of the first entity, further comprises:

merging the observations of the third profile with observations of the first profile that have a same member of the first entity (see "peer group and physician" column 11, lines 22-37); and

rolling up the observations in the merged third profile with respect to each member of the first entity, to produce the enhanced third profile containing one observation for each member of the first entity, the observation including at least one variable describing the interaction of the member of the first entity with respect to members of the second entity (see column 11, lines 22-37).

As per claim 42, Prezioso teaches:

A computer implemented method of generating a profile of a Target entity, the profile including for each member of the Target entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

generating a Target profile of the Target entity (i.e. physician) from historical transactions pertaining to the Target entity (see column 8, lines 53-63), the Target profile including one observation for each Target entity member, the observation having at least one variable summarizing the historical transactions of the Target entity member (see column 8, lines 53-63);

generating an entity A profile of a second entity A from historical transactions to pertaining to entity A, the entity A profile including one observation for each entity A member, the observation including at least one variable summarizing the historical transactions of the entity A member (see physician column 8, lines 53-64);

generating a T/A profile of a T/A entity (i.e. physician and patient) comprising a combination of the interacting Target entity and entity A, from historical transactions pertaining to both the Target entity and A entity, the T/A profile including one observation for each combination of a Target entity member and interacting with an entity A member, the observation including at least one variable describing the transactions of the Target entity member with respect to the entity A member (see column 9, lines 17-37);

enhancing the T/A profile using the entity A profile by combining observations

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from the T/A profile with observations from the entity A profile that have a same entity member, to produce an enhanced T/A profile (see column 9, lines 17-37); and

enhancing the Target entity profile using the enhanced T/A profile by combining observations from the Target profile with observations from the T/A profile that have a same entity member, to produce the Target entity profile (see "membership to peer group and deviation from norm" column 12, lines 1-5).

As per claim 43, Prezioso teaches:

The method of claim 42, wherein enhancing the Target entity profile using the enhanced T/A profile further comprises:

merging the observations from the Target profile with observations of the enhanced T/A profile that have a same entity member (see column 11, lines 23-37); and

for each entity member of the Target entity, rolling up all observations in the Target profile for the entity member into a single observation having at least one variable describing interactions of the Target entity member with respect to other Target entity members (see column 9, lines 24-35; column 9, lines 16-34"; "dividing and total number of office visit").

As per claim 44, Prezioso teaches:

The method of claim 42, wherein enhancing the T/A profile using the entity A profile further comprises:

merging the observations of the T/A profile with portions of the observations of the entity A profile that have a same entity member (see column 11, lines 24-36;

“degree of membership”); and

rolling up the observations in the merged T/A profile with respect to each entity A member, to produce the enhanced T/A profile containing one observation for each entity A member, the observation including at least one variable describing the interaction of the T/A entity member with respect to entity A members (see column 9, lines 16-32; “dividing and totalling office visits”).

As per claim 45, Prezioso teaches:

A computer implemented method of generating a profile of a first entity, the profile including for each member of the first entity, a single observation having at least one variable describing historical transactions pertaining to that member, the method comprising:

generating a first profile of the entity from historical transactions pertaining to the first entity, the first profile including one observation for each member of the first entity, the observation having at least one variable summarizing the historical transactions of the member of the first entity (see column 8, lines 54-64; physician);

generating a second profile of a second entity from historical transactions pertaining to the second entity, the second profile including one observation for each member of the second entity, the observation including at least one variable summarizing the historical transactions of the member of the second entity (see patient; column 8, lines 54-65);

generating a third profile of a third entity comprising a combination of the *interacting* first and second entities, from historical transactions pertaining to both the

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first and second entities, the third profile including one observation for each combination of a member of the first entity interacting with a member of the second entity, the observation including at least one variable describing the transactions of the member of the first entity with respect to the member of the second entity (see "membership to peer group and deviation from the norm"; column 12, lines 1-5);

generating a fourth profile of a fourth entity from historical transactions pertaining to the fourth entity, the fourth profile including one observation for each member of the fourth entity, the observation including at least one variable summarizing the historical transactions of the member of the fourth entity (see peer group; column 12, lines 45-60);

generating a fifth profile of a fifth entity comprising a combination of the *interacting* first and fourth entity, from historical transactions pertaining to both the first and fourth entities, the fifth profile including one observation for each combination of a member of the first entity *interacting with* a member of the fourth entity, the observation including at least one variable describing the transactions of the member of the first entity with respect to the member of the fourth entity (see peer group column 11, lines 24-36);

enhancing the third profile using the first profile by combining observations from the first profile with observations from the third profile that have a same member of the first entity, to produce an enhanced third profile (see column 11, lines 24-36);

enhancing the fifth profile using the first profile by combining observations from the first profile with observations from the fifth profile that have a same member of the

first entity, to produce an enhanced fifth profile (see column 11, lines 24-36); and  
enhancing the first profile using the enhanced third profile and the enhanced fifth profile (see column 11, lines 22-36).

As per claim 46, Prezioso teaches:

The computer implemented method of claim 45, wherein enhancing the first profile using the enhanced third profile and the enhanced fifth profile further comprises:

merging the observations from the first profile with observations of the enhanced third profile that have a same member of the first entity (see column 8, lines 54-65);

merging the observations from the first profile with observations of the enhanced fifth profile that have a same member of the first entity (see column 8, lines 54-65);  
and

for each member of the first entity, rolling up all observations in the first profile for the member into a single observation having at least one variable describing interactions of the member of the first entity with respect to other members of the first entity (see column 9, lines 15-32).

#### ***Response to Arguments***

4. Applicant's arguments filed 04/25/2005 have been fully considered but they are not persuasive. The Applicant argues that "physician peer group" is not equivalent to a "multiple entity profile". The Examiner answers that Applicant's amended specification defined a "multiple entity profile" as "a profile of at least one multiple entity defined by a combination including individual entities". Also, Applicant's specification teaches in page

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3, lines 5-10 "Thus, in provider fraud and abuse detection, the healthcare providers are the target entities while the clients (patients), client's families, other providers, etc are the entities interacting with the target entity". Applicant's specification page 7, lines 3-8 teaches "The result of this process is a cascade profile that describes and summarizes the historical transaction patterns of multiple interacting entities, such as the transaction pattern of entity pairs (e.g., the transaction pattern of a particular provider and client together). The cascade profile provides summary level statistics that are not available merely by summarizing transactions across a single individual entity, but only arise out of the interactions of multiple entities." Therefore, a "multiple entity profile" is a profile of at least a "multiple entity" (i.e. "such as the transaction pattern of entity pairs (e.g., the transaction pattern of a particular provider and client together))" defined by a combination including individual entities (i.e. physicians, clients or other providers"). Prezioso teaches in column 10, lines 53-61 "Using figure 21 as an example of a physician profiling behavior characteristic is the percentage of Sunday and Holiday visits performed. The x-axis shows the range (2.4%-19.4%) of values of the peer group for that behavior characteristic. The y-axis shows the range (0 to 1) of truth values of an entity (physician) indicating the degree of membership (or truth) that a particular entity (physician) has for that behavior characteristic". Therefore, in Prezioso the "multiple entity profile" would be the degree of membership (truth value) (i.e. the values of the profile variables can be used to characterize the different members belonging to an entity" see Applicant's specification page 4, lines 3-6) that a particular entity (physician) has for the behavior characteristic of the peer group obtained from the interaction



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between physicians, physician's peer group and patients for the purpose of searching for fraud.

**Conclusion**


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL LASTRA whose telephone number is 571-272-6720. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ERIC W. STAMBER can be reached on 571-272-6724. The Examiner's Right fax number is 571-273-6720.

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DL

Daniel Lastra  
July 6, 2005

  
RETTAYEHDEGA  
PRIMARY EXAMINER